which is nearest to France. When the distribution of the Diplopoda of these islands is better known, we may find that such an occurrence has a special biological significance.

The wood where our specimens were captured is situated along the slopes and summit of the low chalk-hills which form part of the Wye Downs, running roughly north and south about a mile from Wye itself, and rising on the south from the Selbornian tract below, and on the west from the Chalk valley of the Great Stour, to a little over 500 feet above sea-level in some places. In the area of the wood where we took *P. germanicum*, some three-quarters of a mile E.N.E. from the town, the altitude is only some 400 feet, or 200 to 300 feet above Wye itself. In this portion of the wood hazel, beech, and coniferous trees are well represented, while the ground is often covered with grass and low-growing plants, among which there is a considerable quantity of fallen leaves and other plant débris in autumn. It is among the fallen leaves in this situation that we have taken *Polyzonium*. As Mr. Duffield pointed out to me on one of our visits to this hunting-ground, there is quite a striking superficial resemblance between this new millipede with its yellow to brownish colouring and the fallen bud-cases of the beech to be found at Juniper Wood in the vegetable débris in which, as already stated, the animal itself occurs.

References.

(1) Latzel, Robert. 'Die Myriopoden der österreichisch-ungarischen Monarchie,' ii. (1884).

(2) Pocock, R. I. Article "Millipede" in Encyc. Brit. 11th edit. 1911, xviii. pp. 468–475 *et seq.*

(3) Sinclair, F. G. "Myriapods" in 'The Cambridge Natural History,' 1910, vol. v. pp. 27–80.

(4) Verhoeff, K. W. "Ueber Diplopoden aus Bosnien, Herzogowina und Dalmatien.—V. Glomeridæ & Polyzoniidæ (Schluss)." Archiv für Naturgeschichte, Jahrg. 64, 1898, pp. 161 *et seq.*, pl. vii.

(5) ——. 'Die Diplopoden Deutschlands,' 1911–14.

Wye College, Kent,
19th December, 1919.

XXVIII.—*Note on the Freshwater Isopods known as* Asellus aquaticus.

By Chas. Chilton, M.A., D.Sc., M.B., C.M., LL.D., C.M.Z.S., F.L.S., Professor of Biology, Canterbury College, New Zealand.

The little freshwater Isopods which are common in many streams of different parts of Europe have hitherto always been known under the name of *Asellus aquaticus*, and,

although the animal has been fully described and figured by various authors, no one until recently appears to have suspected that the individuals belonged to more than one form or species. In a recent paper, however, Monsieur E. G. Racovitza * has pointed out that under the name *Asellus aquaticus* two quite distinct forms or series of forms have been confused, and that these differ distinctly from one another by several fairly well-marked characters. He adopts the name *Asellus aquaticus*, Linné, 1758, for one species which appears to be the commonest and the only one hitherto fully described and figured; for the other, which is therefore new, he suggests the name *Asellus meridianus*. For a full account of the differences between these two and for excellent figures showing them reference should be made to M. Racovitza's paper. It seems desirable, however, to call the attention of English naturalists to his results, and in doing so it will be sufficient to indicate briefly some of the more important differences. They are as follows :—

	A. aquaticus.	*A. meridianus.*
Antenna 2 . .	*Male* almost as long as body, *female* a little shorter.	Two-thirds length of body in both sexes.
Maxilla 1 . .	*Four* plumose setæ on distal margin of inner lobe.	*Five* plumose setæ on distal margin of inner lobe.
Peræopod 1 .	Adult male with large triangular projection on inferior margin of propod.	Inferior margin of propod almost straight, no projection.
Peræopod 4 .	Carpus with longitudinal row of 4–5 spines, discontinuous.	Carpus with row of 10–12 long spines, continuous.
Pleopod 1 of male.	Exterior margin of exopod emarginate.	Exterior margin of exopod straight.

Besides these there are other minor differences in the shape of the lateral margins of the peræon segments II. to V. and in the second pleopods of both male and female animals.

On receipt of M. Racovitza's paper I examined the specimens in my own collection, and find that both forms are represented—namely, *Asellus aquaticus*, numerous specimens collected in the Edinburgh–Glasgow Canal at Edinburgh about the year 1898, others in the River Neckar, Heidelberg, 22. iv. 1900; *Asellus meridianus*, several specimens from a small brook at Tunbridge Wells, England, forwarded to me by the Rev. T. R. R. Stebbing. I have dissected and examined a male and a female from each of these localities, as it is almost impossible to distinguish the two species by

* Archiv. Zool. Expér. et Gén. 1919, tome 58, Notes et Revue, pp. 31–43.

external characters unless one has fully adult and perfect males when they might be distinguished by the length of the second antennæ and by the shape of the lateral margins of segments 2 to 5 of the peræon. Many of my specimens are immature and in others the antennæ are broken off, and, though the Tunbridge Wells specimens showed the lateral margins of the peræon segments as described by Racovitza, the difference from the other specimens was hardly sufficient to be distinctive by itself.

The following are brief notes on the specimens I have examined. In the female from Edinburgh the inner lobe of the first maxilla showed the four setæ characteristic of *A. aquaticus* on the one side, while the appendage on the other side had only three*; the second pleopod is circular in outline; the male examined from Edinburgh is evidently not fully mature, for the first thoracic leg has the propod only slightly triangular, though it is certainly approaching towards the outline represented in Racovitza's figure; in the fourth leg the row of spinules on the carpus is distinctly discontinuous and contains only a few spines; the first and second pleopods show the characters described by Racovitza, the exterior margin of the exopod of pleopod 1 being distinctly emarginate.

In a male specimen of *Asellus aquaticus*, Linné, from the River Neckar the first and fourth pairs of legs correspond, on the whole, well with Racovitza's figures and descriptions, though the first one is not fully developed, and consequently the propod not so distinctly triangular; the first and second pleopods are in close agreement with Racovitza's description, the emargination on the external border of the exopod being quite distinct.

Racovitza has examined and identified specimens of *Asellus aquaticus*, Linné, from "Askam bog (Yorkshire), Birmingham," from various localities in France, and from Carniola (Adelsberg), while on the testimony of other authors he records it from Norway, Poland, Livonia, Russia, Germany, Switzerland, and Greenland. The species is therefore very widely distributed. It is this species that has been so well described and figured by Sars†.

* Probably further examination would show that the oral appendages in *Asellus* are liable to a considerable amount of variation, as has been shown by Dr. Collinge to exist in the Oniscoidea or Terrestrial Isopoda (Journ. Linn. Soc., Zool. vol. xxxii. (1914) pp. 287-293, pls. xx., xxi.).

† 1867, 'Hist. nat. des Crustacés d'eau douce de Norvège,' p. 93, pls. viii., ix., & x.; and 1897, 'Crustacea of Norway,' vol. ii. p. 97, pl. xxxix.

In the male of *A. meridianus*, Racovitza, from Tunbridge Wells, both first maxillæ have five setæ on the apex of the inner lobe, the first thoracic leg has the propod distinctly oval, with the inferior margin straight and without any sign of a triangular projection to meet the end of the tip of the finger; the fourth thoracic leg has on the carpus a distinct row of about ten long spinules; the first and second pleopods are in close agreement with the characters assigned to this species, the outer margin of the exopod of pleopod 1 being without any trace of an emargination. In the female from Tunbridge Wells the inner lobe of maxilla 1 bears the five plumose setæ both on the right and on the left sides; the exopod of pleopod 2 is trapezoidal in shape as described by Racovitza.

Racovitza has examined specimens of *A. meridianus* from Dulwich and from Slapton Lea (Devonshire), and from numerous localities in France. He finds it very constant in its characters; it is, he says, not the only one of the series, other allied forms being found in the Mediterranean basin both in surface-streams and in underground waters. Of the underground forms, two—*A. cavaticus*, Schiodte, and *A. foreli*, Bl.—have already been described, and other forms will be described by M. Racovitza in a forthcoming memoir.

XXIX.—*On a new Tentaculate Cestode.*

By Frank E. Beddard, D.Sc., M.A., F.R.S., F.Z.S.

The occurrence of tentacles (I do not include the "proboscides" of the Tetrarhyncha) is so rare among Cestodes that a new example of this occurrence, characterising perhaps a new species or genus, is worth bringing to the notice of zoologists. So far we are only acquainted with one strictly comparable instance, shown in the genus *Schistometra*, of which I shall have something to say later. The only remaining tentaculate worms of this group are the little-known *Paratænia* and *Polypocephalus*, which are regarded by Braun* as possibly identical, but of whose systematic position the ascertained facts of structure do not permit us to form a definite opinion; nor does the recent redescription of *Paratænia* by Southwell† definitely settle the matter.

* In Bronn's 'Klassen und Ordnungen des Thiereichs,' Bd. vi.

† 'Ceylon Marine Biological Reports,' pt. vi., Jan. 1912, No. 22.